Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (currently amended): A developing device used with an electrophotographic image forming ~~Apparatus~~ apparatus having a photosensitive body, the developing device comprising:

a toner transfer body which supplies toner to the photosensitive body having an electrostatic latent image formed thereon;

a supplying member which supplies the toner to the toner transfer body; and

a power supplying unit which applies a developing bias and a supplying bias formed by overlapping a DC potential on an AC potential to the toner transfer body and the supplying member, respectively~~;~~

~~wherein the power supplying unit applies~~, and which varies the developing bias and the supplying bias simultaneously according to a first wave pattern to generate a first electric field to be applied to the toner transfer body and the supplying member ~~so that~~ to supply the toner ~~is supplied~~ to the toner transfer body when a development operation is performed, and ~~applies~~ varies the developing bias and the supply bias simultaneously according to a second wave pattern to generate a second electric field to be applied to the toner transfer body and the supplying member ~~so that~~ to remove the toner ~~is removed~~ from the toner transfer body when the development operation is not performed~~, by varying the developing bias and the supplying bias~~.

2 (original): The device of claim 1, wherein the developing bias and the supplying bias have the same frequency, are synchronized with each other, and have the same duty ratio.

3 (original): The device of claim 2, wherein when a maximum value and a minimum value of the developing bias are Vdr max and Vdr min, respectively, and a maximum value and a minimum value of the supplying bias are Vsr max and Vsr min, respectively, and a duty ratio

of a region having the same polarity as a charging polarity of the toner in the developing bias and the supplying bias is duty,

the first electric field is obtained by

$|Vdr\min - Vsr\min| \times duty < |Vdr\max - Vsr\max| \times (1 - duty)$.

4 (original): The device of claim 2, wherein when a maximum value and a minimum value of the developing bias are Vdr max and Vdr min, respectively, and a maximum value and a minimum value of the supplying bias are Vsr max and Vsr min, respectively, and a duty ratio of a region having the same polarity as a charging polarity of the toner in the developing bias and the supplying bias is duty,

the second electric field is obtained by

$|Vdr\min - Vsr\min| \times duty > |Vdr\max - Vsr\max| \times (1 - duty)$.

5 (original): The device of claim 4, wherein when the second electric field is applied to the toner transfer body and the supplying member, an absolute value of a difference between an average DC potential of the developing bias and a surface potential of the photosensitive body is smaller than a threshold potential difference which is required to transfer the toner from the toner transfer body to the photosensitive body.

6 (original): The device of claim 2, wherein the power supplying unit adjusts the duty ratio of the developing bias and the supplying bias when forming the first and second electric fields.

7 (original): The device of claim 2, wherein the power supplying unit adjusts each level of the developing bias and the supplying bias when forming the first and second electric fields.

8 (currently amended): A developing method performed using an electrophotographic image forming apparatus, the developing method comprising:

applying a developing bias and a supplying bias formed by overlapping a DC potential on an AC potential, respectively, to a toner transfer body and a supplying member~~ to supply the toner to the toner transfer body~~;

supplying toner from the supplying member to the toner transfer body by varying the developing bias and the supplying bias simultaneously according to a first wave pattern to apply a first electric field to the toner transfer body and the supplying member;

supplying the toner to an electrostatic latent image formed on a photosensitive body; ~~and~~

developing the electrostatic latent image~~, wherein a first electric field is applied to the toner transfer body and the supplying member so that the toner is supplied to the toner transfer body when a development operation is performed, and a second electric field is applied to the toner transfer body and the supplying member so that the toner is removed from the toner transfer body when the development operation is not performed, by varying the developing bias and the supplying bias~~; and

removing the toner from the toner transfer body by varying the developing bias and the supplying bias simultaneously according to a second wave pattern to apply a second electric field to the toner transfer body and the supplying member.

9 (original): The method of claim 8, wherein the developing bias and the supplying bias have the same frequency, are synchronized with each other, and have the same duty ratio.

10 (original): The method of claim 9, wherein when a maximum value and a minimum value of the developing bias are Vdr max and Vdr min, respectively, and a maximum value and a minimum value of the supplying bias are Vsr max and Vsr min, respectively, and a duty ratio of a region having the same polarity as a charging polarity of the toner in the developing bias and the supplying bias is duty,

the first electric field is obtained by

$$|Vdr\ \mathrm{min} - Vsr\ \mathrm{min}| \times duty < |Vdr\ \mathrm{max} - Vsr\ \mathrm{max}| \times (1 - duty).$$

11 (currently amended): The method of claim 9, wherein when a maximum value and a

minimum value of the developing bias are Vdr max and Vdr min, respectively, and a maximum value and a minimum value of the supplying bias are Vsr max and Vsr min, respectively, and a duty ratio of a region having the same polarity as a charging polarity of the toner in the developing bias and the supplying bias is duty,

the second electric field is obtained by

$$|Vdr\min - Vsr\min| \times duty > |Vdr\max - Vsr\max| \times (1 - duty).$$

12 (original): The method of claim 11, wherein when the second electric field is applied to the toner transfer body and the supplying member, an absolute value of a difference between an average DC potential Vave of the developing bias and a surface potential of the photosensitive body is smaller than a threshold potential difference which is required to transfer the toner from the toner transfer body to the photosensitive body.

13 (original): The method of claim 9, wherein the first and second electric fields are obtained by adjusting a duty ratio of the developing bias and the supplying bias.

14 (original): The method of claim 9, wherein the first and second electric fields are obtained by adjusting levels of the developing bias and the supplying bias.

15 (currently amended): A developing unit used with an image forming apparatus, comprising:

a toner transfer body to supply toner to a photosensitive body having a latent image formed thereon;

a ~~supply~~ supplying member to supply toner to the toner transfer body; and

a power supplying unit generating a first bias between the toner transfer body and the ~~toner~~ supplying member to attach the toner to the toner transfer body, and a second bias between the toner transfer body and the supplying member to remove toner ~~form~~ from the toner transfer body by simultaneously adjusting at least one of a duty ratio and a level of a developing bias and a supplying bias formed by overlapping a DC potential on an AC potential and supplied to the toner transfer body and the supplying member, respectively.

16 (new): The device of claim 1, wherein the power supplying unit varies the developing bias between a first maximum developing bias and a first minimum developing bias and simultaneously varies the supplying bias between a first maximum supplying bias less than the first maximum developing bias and a first minimum supplying bias greater than the first minimum developing bias according to the first wave pattern, and the power supplying unit varies the developing bias between a second maximum developing bias and a second minimum developing bias and simultaneously varies the supplying bias between a second maximum supplying bias less than the second maximum developing bias and a second minimum supplying bias greater than the second minimum developing bias according to the second wave pattern.

17 (new): The device of claim 1, wherein the first wave pattern has a first duty ratio and the second wave pattern has a second duty ratio different from the first duty ratio.

18 (new): The device of claim 17, wherein a frequency of the first wave pattern is the same as a frequency of the second wave pattern.